REFERENCES 73

[23] E. G. Barrantes, D. H. Ackley, S. Forrest, T. S. Palmer, D. Stefanovic, and D. D. Zovi, "Randomized instruction set emulation to disrupt binary code injection attacks," in *Proc. CCS*, pp. 281–289, 2003.

- [24] M. Chew and D. Song, "Mitigating buffer overflows by operating system randomization," Tech. Rep. CS-02-197, Carnegie Mellon University, 2002.
- [25] J. Cabrera Arteaga, "Artificial software diversification for webassembly," 2022. QC 20220909.
- [26] A. Rossberg, B. L. Titzer, A. Haas, D. L. Schuff, D. Gohman, L. Wagner, A. Zakai, J. F. Bastien, and M. Holman, "Bringing the web up to speed with webassembly," *Commun. ACM*, vol. 61, p. 107–115, nov 2018.
- [27] D. Bryant, "Webassembly outside the browser: A new foundation for pervasive computing," in *Proc. of ICWE 2020*, pp. 9–12, 2020.
- [28] B. Spies and M. Mock, "An evaluation of webassembly in non-web environments," in 2021 XLVII Latin American Computing Conference (CLEI), pp. 1–10, 2021.
- [29] E. Wen and G. Weber, "Wasmachine: Bring iot up to speed with a webassembly os," in 2020 IEEE International Conference on Pervasive Computing and Communications Workshops (PerCom Workshops), pp. 1–4, IEEE, 2020.
- [30] A. Hilbig, D. Lehmann, and M. Pradel, "An empirical study of real-world webassembly binaries: Security, languages, use cases," *Proceedings of the Web Conference 2021*, 2021.
- [31] L. Wagner, M. Mayer, A. Marino, A. Soldani Nezhad, H. Zwaan, and I. Malavolta, "On the energy consumption and performance of webassembly binaries across programming languages and runtimes in iot," in *Proceedings of the 27th International Conference on Evaluation and Assessment in Software Engineering*, EASE '23, (New York, NY, USA), p. 72–82, Association for Computing Machinery, 2023.
- [32] N. Mäkitalo, T. Mikkonen, C. Pautasso, V. Bankowski, P. Daubaris, R. Mikkola, and O. Beletski, "Webassembly modules as lightweight containers for liquid iot applications," in *International Conference on Web Engineering*, pp. 328–336, Springer, 2021.
- [33] P. K. Gadepalli, S. McBride, G. Peach, L. Cherkasova, and G. Parmer, "Sledge: A serverless-first, light-weight wasm runtime for the edge," in *Proceedings of the 21st International Middleware Conference*, p. 265–279, 2020.

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[34] R. Gurdeep Singh and C. Scholliers, "Warduino: A dynamic webassembly virtual machine for programming microcontrollers," in *Proceedings of the 16th ACM SIGPLAN International Conference on Managed Programming Languages and Runtimes*, MPLR 2019, (New York, NY, USA), pp. 27–36, ACM, 2019.

- [35] I. Bastys, M. Algehed, A. Sjösten, and A. Sabelfeld, "Secwasm: Information flow control for webassembly," in *Static Analysis* (G. Singh and C. Urban, eds.), (Cham), pp. 74–103, Springer Nature Switzerland, 2022.
- [36] T. Brito, P. Lopes, N. Santos, and J. F. Santos, "Wasmati: An efficient static vulnerability scanner for webassembly," *Computers & Security*, vol. 118, p. 102745, 2022.
- [37] F. Marques, J. Fragoso Santos, N. Santos, and P. Adão, "Concolic execution for webassembly (artifact)," Schloss Dagstuhl-Leibniz-Zentrum für Informatik, 2022.
- [38] E. Johnson, D. Thien, Y. Alhessi, S. Narayan, F. Brown, S. Lerner, T. McMullen, S. Savage, and D. Stefan, ", : Sfi safety for native-compiled wasm," *Network and Distributed Systems Security (NDSS) Symposium*.
- [39] C. Watt, J. Renner, N. Popescu, S. Cauligi, and D. Stefan, "Ct-wasm: Type-driven secure cryptography for the web ecosystem," *Proc. ACM Program. Lang.*, vol. 3, jan 2019.
- [40] R. M. Tsoupidi, M. Balliu, and B. Baudry, "Vivienne: Relational verification of cryptographic implementations in webassembly," in 2021 IEEE Secure Development Conference (SecDev), pp. 94–102, 2021.
- [41] Q. Stiévenart and C. De Roover, "Wassail: a webassembly static analysis library," in *Fifth International Workshop on Programming Technology for the Future Web*, 2021.
- [42] F. Breitfelder, T. Roth, L. Baumgärtner, and M. Mezini, "Wasma: A static webassembly analysis framework for everyone," in 2023 IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER), pp. 753–757, 2023.
- [43] W. Fu, R. Lin, and D. Inge, "Taintassembly: Taint-based information flow control tracking for webassembly," arXiv preprint arXiv:1802.01050, 2018.
- [44] D. Lehmann, M. T. Torp, and M. Pradel, "Fuzzm: Finding memory bugs through binary-only instrumentation and fuzzing of webassembly," arXiv preprint arXiv:2110.15433, 2021.